CLAIMS:

1. A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:

a transmitter in a space vehicle transmitting a signal;

a receiver in the space vehicle receiving the signal emitted by the transmitter; and

a processor verifying the integrity of the transmitted signal.

2. The system of claim 2, further including:

a transmitting antenna mounted on the space vehicle for transmitting the signal from the transmitter;

a receiving antenna mounted on the space vehicle receiving the signal transmitted by the transmitting antenna; and

a processor verifying the integrity of the transmitted signal.

3. The system of claim 2, wherein the space vehicle is a Global Positioning System satellite.

4. The system of claim 2, further including:

a memory storing a digital message, wherein the processor verifies the integrity of the transmitted signal by extracting a digital message from the signal

received by the receiver and comparing the received digital message with the digital message stored in the memory.

5. The system of claim 4, wherein the digital message is a GPS navigation message.

6. The system of claim 2, wherein the processor verifies the integrity of the transmitted signal by comparing a waveform of the signal received by the receiver with waveform data stored in the memory.

7. The system of claim 1, wherein the receiver receives a signal from the output of the transmitter and verifies the integrity of the transmitted signal by comparing the signal from the output of the transmitter with data stored in memory.

8. The system of claim 1, wherein the processor generates an integrity message that that indicates the accuracy and/or the integrity of the transmitted signal.

9. The system of claim 8, wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

10. The system of claim 8, wherein the integrity message is transmitted over a channel separate from the channel transmitting the GPS navigation message.

11. The system of claim 10, wherein the separate channel is the L5 channel.

12. A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:

a transmitting antenna mounted on the space vehicle for transmitting a signal;

a receiving antenna mounted on the space vehicle receiving the signal transmitted by the transmitting antenna; and

a processor verifying the integrity of the received signal.

13. The system of claim 12, wherein the space vehicle is a Global Positioning System satellite.

14. The system of claim 12, further including:

a memory storing a digital message, wherein the processor verifies the integrity of the transmitted signal by extracting a digital message from the signal received by the receiver and comparing the received digital message with the digital message stored in the memory.

15. The system of claim 12, wherein the digital message is a GPS navigation message.

16. The system of claim 2, wherein the processor verifies the integrity of the transmitted signal by comparing a waveform of the signal received by the receiver with waveform data stored in the memory.

17. The system of claim 13, wherein the receiver receives a signal from the output of the transmitter and verifies the integrity of the transmitted signal by comparing the signal from the output of the transmitter with data stored in memory.

18. The system of claim 13, wherein the processor generates an integrity message that that indicates the accuracy and/or the integrity of the transmitted signal.

19. The system of claim 18, wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

20. The system of claim 18, wherein the integrity message is transmitted over a channel separate from the channel transmitting the GPS navigation message.

21. The system of claim 20, wherein the separate channel is the L5 channel.

22. A system for verifying the integrity of a transmitted signal, comprising:

a transmitter for transmitting a signal;

a receiver for receiving the signal transmitted by the transmitter; and

a processor verifying the integrity of the transmitted signal by performing a check of the signal received by the receiver.

23. The system of claim 22, further including:

a transmitting antenna for transmitting the signal from the transmitter;

a receiving antenna for receiving for the signal transmitted by the transmitting antenna; and

a processor verifying the integrity of the transmitted signal.

24. The system of claim 22, wherein the space vehicle is a Global Positioning System satellite.

25. The system of claim 22, further including:

a memory storing a digital message, wherein the processor verifies the integrity of the transmitted signal by extracting a digital message from the signal received by the receiver and comparing the received digital message with the digital message stored in the memory.

26. The system of claim 22, wherein the processor verifies the integrity of the transmitted signal by comparing a waveform of the signal received by the receiver with waveform data stored in the memory.

27. A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:

a transmitting antenna mounted on the space vehicle for transmitting a signal;

a receiving antenna mounted on the space vehicle receiving the signal transmitted by the transmitting antenna; and

a processor verifying the integrity of the received signal.

28. The system of claim 27, wherein the space vehicle is a Global Positioning System satellite.

29. The system of claim 27, further including:

a memory storing a digital message, wherein the processor verifies the integrity of the transmitted signal by extracting a digital message from the signal received by the receiver and comparing the received digital message with the digital message stored in the memory.

30. The system of claim 27, wherein the processor verifies the integrity of the transmitted signal by comparing a waveform of the signal received by the receiver with waveform data stored in the memory.

31. A method for verifying the integrity of a transmitted signal, comprising:

transmitting a signal from a transmitter on a space vehicle;

receiving the signal at a receiver on the space vehicle; and

verifying the integrity of the transmitted signal.

32. The method of claim 31, further including:

storing a representation of the signal to be transmitted in a memory prior to transmission.

33. The method of claim 32, wherein the verifying of the integrity of the transmitted signal comprises extracting a digital message from the signal received by the receiver and comparing the received digital message with the digital message stored in the memory.

34. The method of claim 33, wherein the verifying of the integrity of the transmitted signal comprises comparing a waveform of the signal received by the receiver with waveform data stored in the memory.

35. The method of claim 33, wherein the receiving of the signal comprises receiving a signal from the output of the transmitter, and wherein the verifying the integrity of the transmitted signal comprises comparing the signal from the output of the transmitter with data stored in the memory.

36. The method of claim 33, further including:

generating an integrity message that that indicates the accuracy and/or the integrity of the transmitted signal.

37. The method of claim 36, further including:

incorporating the integrity message into a GPS navigation message transmitted by the transmitter.

38. The method of claim 36, further including:

transmitting the integrity message over a channel separate from a channel transmitting a GPS navigation message.

39. The method of claim 38, wherein the separate channel is the L5 channel.